CLAIMS

1. A method for synthesizing cDNA possessing a consecutive sequence starting with a nucleotide adjacent to a cap structure of mRNA, which method comprises the processes for:

(i) annealing a double-stranded DNA primer and an RNA mixture containing mRNA possessing a cap structure,

(ii) preparing a conjugate of an mRNA/cDNA heteroduplex and a double-stranded DNA primer by synthesizing the first-strand cDNA primed with the double-stranded DNA primer using reverse transcriptase, and

(iii) circularizing the conjugate of the mRNA/cDNA heteroduplex and the double-stranded DNA primer by joining the 3' and 5' ends of the DNA strand containing cDNA using ligase.

2. The method of claim 1, wherein mRNA possessing a cap structure is contained in a cell extract.

3. The method of claim 1, wherein mRNA possessing a cap structure is synthesized by in vitro transcription.

4. The method of claim 1, wherein the primer sequence of the double-stranded DNA primer contains a sequence complementary to a partial sequence of mRNA possessing a cap structure.

5. The method of claim 1, wherein the primer sequence of the double-stranded DNA primer contains an oligo dT complementary to a poly(A) sequence of mRNA possessing a cap structure.

6. The method of claim 1, wherein the ligase is T4 RNA ligase.

7. The method of any one of claims 1 to 6, which comprises the following process between the process (ii) and the process (iii) :

(ii') generating a 5'-protruding end or a blunt end at the terminal of the double-stranded DNA primer by cutting the conjugate of the mRNA/cDNA heteroduplex and the double-stranded DNA primer using a restriction enzyme.

8. The method of any one of claims 1 to 7, which further comprises the following process:
(iv) synthesizing the second-strand cDNA by replacing an RNA strand with a DNA strand in the conjugate of the mRNA/cDNA heteroduplex and the double-stranded DNA primer.

9. The method of claim 8, wherein the double-stranded DNA primer contains a replication origin or both a replication origin and a promoter for cDNA expression.

10. The method of claim 8, which further comprises the following process:
(v) incorporating the double-stranded cDNA composed of the first-strand cDNA and the second-strand cDNA into a vector DNA.

11. A cDNA library that is a population of clones containing double-stranded cDNA synthesized by the method of claim 8 or claim 10, of which more than 60% of the cDNA clones possesses a 5'-end nucleotide of (dT)ndG (n=0-5) followed by a consecutive sequence starting with a nucleotide adjacent to a cap structure of mRNA.

12. A method for selecting a cDNA clonepossessinga consecutive sequence starting with a nucleotide adjacent to a cap structure of mRNA, from clones in the cDNA library of clam 11, wherein a cDNA clone possessing a 5'-end nucleotide of (dT)ndG (n=0-5) is selected as an objective clone.

13. A double-stranded DNA primer possessing an oligo (dT)n (n=15-100) as a primer part, in which one terminal part of a primer side has an 8-base recognition restriction enzyme site RE1, and another terminal part has an 8-base recognition restriction enzyme site RE2 and a restriction enzyme site RE3 generating a 5'-proturding end or a blunt end.

14. The double-stranded DNA primer of clam 13, which contains a replication origin or both a replication origin and a promoter for cDNA expression.

15. The double-stranded DNA primer of clam 14, which is a vector primer derived from pGCAP10 comprising the nucleotide sequence of SEQ ID NO: 2.

16. A reagent kit for cDNA synthesis, which comprises the double-stranded DNA primer of clam 14 or clam 15, reverse transcriptase and its reaction buffer solution, T4 RNA ligase and its reaction buffer solution, and model mRNA possessing a cap structure.